DETAILED ACTION

Applicant is advised that the Notice of Allowance mailed 8/31/09 is vacated. If the issue fee has already been paid, applicant may request a refund or request that the fee be credited to a deposit account. However, applicant may wait until the application is either found allowable or held abandoned. If allowed, upon receipt of a new Notice of Allowance, applicant may request that the previously submitted issue fee be applied. If abandoned, applicant may request refund or credit to a specified Deposit Account.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1,3, 5, 7, 8, 10-11, 13, 16, 26-27, 29, 35, 37-42, 44-45, 47, 51, 54, 56-57, 60, 70, 72, 134-139 and 140 are rejected under 35 U.S.C. 102(b) as being unpatentable by Parikh et al (4047978).

Parikh teaches processing a copper base alloy. Parikh, col. 3 lines 1-13, teaches the balance of the alloy is essentially copper. The alloy may further include allotting additions. For example, the alloy may include at least one second element different from the first element, the second element being selected from the group consisting of about

.001-4% by weight of silicon, about .001-37% by weight of zinc, about .001 -.4% by weight of phosphorus, about .001-5% by weight zirconium and mixtures thereof.

Further, Parikh, col. 3 lines 33-40, teaches the alloy may be cast in any desired or convenient manner and hot rolled as desired to break up the cast structure.

Further, one must provide the copper base alloy in the fully recrystalized form and having a fine grain size of less than .015 mm (15 micrometers).
Parikh teaches a recrystalization step after casting to obtain a grain size of less than .015 mm.

The instant claim teaches "the copper alloy have an average diameter of 200 microns or less in a macrostructure after the copper alloy has been melted and solidified by casting". Therefore, other steps can be included after the casting step to obtain a grain size of less than .015 mm.

The copper alloy as taught by Parikh is made by the same method as taught in the instant specification and therefore it would be expected that Parikh and the instant claims would result in the same properties and the same phases.

Further, Parikh weight ranges of copper, silicon, zinc, phosphorus and zirconium all fit within the relationships as taught in the instant claims.
f0=38.4-99.99, f1=.002-400, f2=.002-4000, f3=.0025 to 4000

Regarding claim 3, Parikh teaches further including about .001-10% by weight of tin. Therefore, f0=23.4-99.9925, fl =.002-400, f2=.002-4000, f3=.0025 to 4000.

Regarding claim 5, Parikh teaches further including about .001-10% by weight of aluminum.

Therefore, f0=24.2-99.99, fl =.002-400, f2=.002-4000, f3=.0025 to 4000.

Regarding claim 7, 35, 37, Parikh teaches further including about .001-25% by weight of nickel and about .001-5% iron.

Regarding claim 8, 10-11,38-42, 44-45, 47, the copper alloy as taught by Parikh is made by the same method as taught in the instant specification and therefore it would be expected that Parikh and the instant claims would result in the same properties and the same phases.

Regarding claims 13, 51,54, 56-57, 60, Parikh, col. 3 lines 36-40, teaches the alloy may be cast in any desire manner and hot rolled to break up the cast structure and obtain the desired gage.

Regarding claims 16, Parikh, col. 3 lines 36-40, teaches the alloy may be cast in any desire manner and hot rolled to break up the cast structure and obtain the desired gage.

Regarding claim 19 and 79, the copper alloy as taught by Parikh is made by the same method as taught in the instant specification and therefore it would be expected

that Parikh and the instant claims would result in the same properties and the same phases.

Regarding claims 26-27, 134-139 Parikh teaches the balance of the alloy is essentially copper. Naturally, the alloy may include further alloying additions. For example, the alloy may include at least one second element different from the first element, the second element being selected from the group consisting of about 0.001 to 10% aluminum, about 0.001 to 4% germanium, about 0.001 to 8% gallium, about 0.001 to 10% indium, about 0.001 to 4% silicon, about 0.001 to 10% tin, about 0.001 to 37% zinc, about 0.001 to 25% nickel, about 0.001 to 0.4% phosphorus, about 0.001 to 5% iron, about 0.001 to 5% cobalt, about 0.001 to 5% zirconium, about 0.001 to 10% manganese and mixtures thereof.

Regarding claim 29, Parikh teaches further including about .001-10% by weight of aluminum. With the addition of a small amount of aluminum, the composition still falls within the instant relationships.

Regarding claims 70 and 72, Parikh, col. 3 lines 36-40, teaches the alloy may be cast in any desire manner and hot rolled to break up the cast structure and obtain the desired gage.

Regarding claim 140, the copper alloy as taught by Parikh is made by the same method as taught in the instant specification and therefore it would be expected that Parikh and the instant claims would result in the same properties and the same phases.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) as applied to claim 1 and further in view of Yamazaki et al (4710349).

Although Parikh teaches an alloy comprising copper, silicon, zinc, zirconium and phosphorus, Parikh does not teach an alloy comprising tellurium.
Yamazaki, col. 3 lines 34-43, teaches a copper based alloy comprising .001- .02% by weight of tellurium.

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate tellurium in the amount as taught by Yamazaki into the alloy as taught by Parikh because Yamazaki teaches tellurium improves the heat resistance of the alloy.

The copper alloy as taught by Parikh and Yamazaki is made by the same method and has the same composition as taught in the instant specification. Therefore, it would be expected that Parikh and the instant claims would result in the same properties and the same phases.

Further, fo=38.6-99.99, fl =.002-400, f2=.002-4000, f3=.0025 to 4000, f6=38.86-100 and f7=38.33-99.93.

Claim 4 is rejected under U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) in view of Yamazaki et al (4710349) as applied to claim 2.

Parikh teaches further including about .001-10% by weight of tin. With the addition of a small amount of tin, the composition still falls within the instant relationships.

Claims 6, 31-33 are rejected under U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) in view of Yamazaki et al (4710349) as applied to claim 2. Regarding claims 6, 31-33, the copper alloy as taught by Parikh and Yamazaki is made by the same method and has the same composition as taught in the instant specification. Therefore, it would be expected that Parikh and the instant claims would

result in the same properties and the same phases.

Claim 12 is rejected under U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) in view of Yamazaki et al (4710349) as applied to claim 2.

Further, Parikh and Yamazaki do not teach incorporating lead or bismuth into the copper alloy.

Claim 28 is rejected under U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) in view of Yamazaki et al (4710349) as applied to claim 2.

Parikh in view of Yamazaki teaches a copper alloy comprising silicon, zinc, zirconium, phosphorus, bismuth and further including .001-10% by weight of aluminum. With the addition of a small amount of aluminum, the composition still falls within the instant relationships.

The copper alloy as taught by Parikh and Yamazaki is made by the same method and has the same composition as taught in the instant specification. Therefore, it would be expected that Parikh and the instant claims would result in the same properties and the same phases.

Claim 30 is rejected under U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) in view of Yamazaki et al (4710349) as applied to claim 4.

Parikh teaches further including about .001-10% by weight of aluminum. With the addition of a small amount of aluminum, the composition still falls within the instant relationships.

Claim 31 is rejected under U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) in view of Yamazaki et al (4710349) as applied to claim 4.

The copper alloy as taught by Parikh and Yamazaki is made by the same method and has the same composition as taught in the instant specification. Therefore, it would be expected that Parikh and the instant claims would result in the same properties and the same phases.

Claim 32 is rejected under U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) in view of Yamazaki et al (4710349) as applied to claim 28.

The copper alloy as taught by Parikh and Yamazaki is made by the same method and has the same composition as taught in the instant specification. Therefore, it would be expected that Parikh and the instant claims would result in the same properties and the same phases.

Claim 33 is rejected under U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) in view of Yamazaki et al (4710349) as applied to claim 30.

The copper alloy as taught by Parikh and Yamazaki is made by the same method and has the same composition as taught in the instant specification. Therefore, it would

be expected that Parikh and the instant claims would result in the same properties and the same phases.

Claim 34 is rejected under U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) in view of Yamazaki et al (4710349) as applied to claim 2.

Parikh teaches further including about .001-25% by weight of nickel and about .001-5% iron.

Claim 36 is rejected under U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) in view of Yamazaki et al (4710349) as applied to claim 4.

Parikh teaches further including about .001-25% by weight of nickel and about .001-5% iron.

Claim 43 is rejected under U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) in view of Yamazaki et al (4710349) as applied to claim 2.

The copper alloy as taught by Parikh is made by the same method as taught in the instant specification and therefore it would be expected that Parikh and the instant claims would result in the same properties and the same phases.

Claim 46 is rejected under U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) in view of Yamazaki et al (4710349) as applied to claim 6.

The copper alloy as taught by Parikh is made by the same method as taught in the instant specification and therefore it would be expected that Parikh and the instant claims would result in the same properties and the same phases.

Claim 48 is rejected under U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) in view of Yamazaki et al (4710349) as applied to claim 4.

Further, Parikh teaches a copper alloy further comprising P, Al, Mn and or tin.

Claim 49 is rejected under U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) in view of Yamazaki et al (4710349) as applied to claim 2.

Parikh col. 3 lines 36-40, teaches the alloy may be cast in any desire manner and hot rolled to break up the cast structure and obtain the desired gage.

Claim 53 is rejected under U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) in view of Yamazaki et al (4710349) as applied to claim 4.

Parikh col. 3 lines 36-40, teaches the alloy may be cast in any desire manner and hot rolled to break up the cast structure and obtain the desired gage.

Claim 55 is rejected under U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) in view of Yamazaki et al (4710349) as applied to claim 6.

Parikh col. 3 lines 36-40, teaches the alloy may be cast in any desire manner and hot rolled to break up the cast structure and obtain the desired gage.

Claim 58 is rejected under U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) in view of Yamazaki et al (4710349) as applied to claim 28.

Further Parikh, col. 3 lines 36-40, teaches the alloy may be cast in any desire manner and hot rolled to break up the cast structure and obtain the desired gage.

Claim 59 is rejected under U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) in view of Yamazaki et al (4710349) as applied to claim 31.

Further Parikh, col. 3 lines 36-40, teaches the alloy may be cast in any desire manner and hot rolled to break up the cast structure and obtain the desired gage.

Claim 69 is rejected under U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) in view of Yamazaki et al (4710349) as applied to claim 49.

Parikh col. 3 lines 36-40, teaches the alloy may be cast in any desire manner and hot rolled to break up the cast structure and obtain the desired gage.

Claim 71 is rejected under U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) in view of Yamazaki et al (4710349) as applied to claim 49.

Parikh col. 3 lines 36-40, teaches the alloy may be cast in any desire manner and hot rolled to break up the cast structure and obtain the desired gage.

Claim 73 is rejected under U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) in view of Yamazaki et al (4710349) as applied to claim 49.

It would have been obvious to one of ordinary skill in the art at the time of the invention optimize the temperature of the casting process to obtain a specific solid phase fraction.

Claim 74 is rejected under U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) in view of Yamazaki et al (4710349) as applied to claim 49.

The copper alloy as taught by Parikh is made by the same method as taught in the instant specification and therefore it would be expected that Parikh and the instant claims would result in the same properties and the same phases.

Claims 75 is rejected under U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) in view of Yamazaki et al (4710349) as applied to claim 73.

It would have been obvious to one of ordinary skill in the art at the time of the invention to optimize the casting process to obtain a specific shape.

Claims 76-78 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) as applied to claim 51.

Regarding claim 76, it would have been obvious to one of ordinary skill in the art at the time of the invention optimize the temperature of the casting process to obtain a specific solid phase fraction.

Regarding claim 77, the copper alloy as taught by Parikh is made by the same method as taught in the instant specification and therefore it would be expected that Parikh and the instant claims would result in the same properties and the same phases.

Regarding claim 78, it would have been obvious to one of ordinary skill in the art at the time of the invention to optimize the casting process to obtain a specific shape.

Claim 79 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parikh et al (4110132) as applied to claim 19.

It would have been obvious to one of ordinary skill in the art at the time of the invention to optimize the casting process to obtain a specific shape.

Claims 80 is rejected under U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) in view of Yamazaki et al (4710349) as applied to claim 74.

It would have been obvious to one of ordinary skill in the art at the time of the invention to optimize the casting process to obtain a specific shape.

Claim 81 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) as applied to claim 77.

It would have been obvious to one of ordinary skill in the art at the time of the invention to optimize the casting process to obtain a specific shape.

Claims 82-83 are rejected under U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) in view of Yamazaki et al (4710349) as applied to claim 49 and further in view of Oishi (20020159912).

Although Parikh and Yamazaki teach a copper alloy composition, neither teaches a continuous metal composition, neither teaches the copper alloy being a water fitting used in contact with water.

Oishi, paragraph 10 of the PGPUB, teaches copper alloys are suitable for use in city water faucets, water/supply/drainage metal fittings and hot water supply pipe fittings.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use as taught by Oishi the copper alloy as taught by Parikh in view of Yamazaki because these are conventional usages of a copper alloy.

Claims 84-85 are rejected under U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) as applied to claim 51 and further in view of Oishi (20020159912).

Although Parikh teaches a copper alloy composition, neither teaches a continuous metal composition, neither teaches the copper alloy being a water fitting used in contact with water.

Oishi, paragraph 10 of the PGPUB, teaches copper alloys are suitable for use in city water faucets, water/supply/drainage metal fittings and hot water supply pipe fittings.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use as taught by Oishi the copper alloy as taught by Parikh in view of Yamazaki because these are conventional usages of a copper alloy.

Claims 86-87 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parikh et al (4110132) in view of Oishi (20020159912) and in view of Ohno (4515204) as applied to claim 15.

Further, Oishi, paragraph 10 of the PGPUB, teaches copper alloys are suitable for use in city water faucets, water/supply/drainage metal fittings and hot water supply pipe fittings.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use as taught by Oishi the copper alloy as taught by Parikh in view of Yamazaki because these are conventional usages of a copper alloy.

Claims 14, 21- 25, are rejected under 35 U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) as applied to claim 13 and further in view of Oishi (20020159912).

Although Parikh teaches a copper alloy, Parikh does not teach a method to produce a cut chip.

Oishi, paragraph 54 of the PGPUB, teaches an alloy cut by a lathe with a point noise straight tool at a rake angle of -8 degrees and at a cutting rate of 50 m/min, a cutting depth of 1.5 mm and a feed of .11 mm/rev.

It would have been obvious to one of ordinary skill in the art at the time of the invention have been obvious to one of ordinary skill in the art at the time of the invention to use a lathe taught by Oishi to cut the Parikh alloy because this is one specific conventional and efficient method to cut an alloy.

It would have been obvious to one of ordinary skill in the art at the time of the invention to optimize the properties of the lathe taught by Parikh to obtain a necessary alloy shape.

Although the Oishi prior art and the instant invention each aim to improve different characteristics of a copper alloy, it would have been obvious to one of ordinary skill in the art at the time of the invention the method as taught by Oishi can still be used to obtain cut chips of the Parikh copper alloy.

Regarding claims 21- 22, Oishi, paragraph 10 of the PGPUB, teaches copper alloys are suitable for use in city water faucets, water/supply/drainage metal fittings and hot water supply pipe fittings.

Regarding claims 23-24, Oishi, paragraph 11 of the PGPUB, teaches copper alloys are suitable for hydraulic parts, bearings and gears.

Regarding claims 25, Oishi, paragraph 13 of the PGPUB, teaches copper alloys can be formed into tube connectors called "nipples".

Claim 50 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) in view of Yamazaki et al (4710349) as applied to claim 49 and further in view of Oishi (20020159912).

Although Parikh and Yamazaki teach a copper alloy, neither teaches a method to produce a cut chip.

Oishi, paragraph 54 of the PGPUB, teaches an alloy cut by a lathe with a point noise straight tool at a rake angle of -8 degrees and at a cutting rate of 50 m/min, a cutting depth of 1.5 mm and a feed of .11 mm/rev.

It would have been obvious to one of ordinary skill in the art at the time of the invention have been obvious to one of ordinary skill in the art at the time of the invention to use a lathe taught by Oishi to cut the Parikh in view of Yamazaki alloy because this is one specific conventional and efficient method to cut an alloy.

It would have been obvious to one of ordinary skill in the art at the time of the invention to optimize the properties of the lathe taught by Parikh to obtain a necessary alloy shape.

Although the Oishi prior art and the instant invention each aim to improve different characteristics of a copper alloy, it would have been obvious to one of ordinary skill in the art at the time of the invention the method as taught by Oishi can still be used

to obtain cut chips of the Parikh copper alloy.

Claim 52 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) as applied to claim 51 and further in view of Oishi (20020159912).

Although Parikh teaches a copper alloy, Parikh does not teach a method to produce a cut chip.

Oishi, paragraph 54 of the PGPUB, teaches an alloy cut by a lathe with a point noise straight tool at a rake angle of -8 degrees and at a cutting rate of 50 m/min, a cutting depth of 1.5 mm and a feed of .11 mm/rev.

It would have been obvious to one of ordinary skill in the art at the time of the invention have been obvious to one of ordinary skill in the art at the time of the invention to use a lathe taught by Oishi to cut the Parikh alloy because this is one specific conventional and efficient method to cut an alloy.

It would have been obvious to one of ordinary skill in the art at the time of the invention to optimize the properties of the lathe taught by Parikh to obtain a necessary alloy shape.

Although the Oishi prior art and the instant invention each aim to improve different characteristics of a copper alloy, it would have been obvious to one of ordinary skill in the art at the time of the invention the method as taught by Oishi can still be used to obtain cut chips of the Parikh copper alloy.

Claim 61 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) in view of Yamazaki et al (4710349) as applied to claim 53 and further in view of Oishi (20020159912).

Although Parikh teaches a copper alloy, Parikh does not teach a method to produce a cut chip.

Oishi, paragraph 54 of the PGPUB, teaches an alloy cut by a lathe with a point noise straight tool at a rake angle of -8 degrees and at a cutting rate of 50 m/min, a cutting depth of 1.5 mm and a feed of .11 mm/rev.

It would have been obvious to one of ordinary skill in the art at the time of the invention have been obvious to one of ordinary skill in the art at the time of the invention to use a lathe taught by Oishi to cut the Parikh alloy because this is one specific conventional and efficient method to cut an alloy.

It would have been obvious to one of ordinary skill in the art at the time of the invention to optimize the properties of the lathe taught by Parikh to obtain a necessary alloy shape.

Although the Oishi prior art and the instant invention each aim to improve different characteristics of a copper alloy, it would have been obvious to one of ordinary skill in the art at the time of the invention the method as taught by Oishi can still be used to obtain cut chips of the Parikh copper alloy.

Claim 62 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) as applied to claim 54 and further in view of Oishi (20020159912).

Although Parikh teaches a copper alloy, Parikh does not teach a method to produce a cut chip.

Oishi, paragraph 54 of the PGPUB, teaches an alloy cut by a lathe with a point noise straight tool at a rake angle of -8 degrees and at a cutting rate of 50 m/min, a cutting depth of 1.5 mm and a feed of .11 mm/rev.

It would have been obvious to one of ordinary skill in the art at the time of the invention have been obvious to one of ordinary skill in the art at the time of the invention to use a lathe taught by Oishi to cut the Parikh alloy because this is one specific conventional and efficient method to cut an alloy.

It would have been obvious to one of ordinary skill in the art at the time of the invention to optimize the properties of the lathe taught by Parikh to obtain a necessary alloy shape.

Although the Oishi prior art and the instant invention each aim to improve different characteristics of a copper alloy, it would have been obvious to one of ordinary skill in the art at the time of the invention the method as taught by Oishi can still be used to obtain cut chips of the Parikh copper alloy.

Claim 63 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) in view of Yamazaki et al (4710349) as applied to claim 58 and further in view of Oishi (20020159912).

Although Parikh teaches a copper alloy, Parikh does not teach a method to produce a cut chip.

Oishi, paragraph 54 of the PGPUB, teaches an alloy cut by a lathe with a point noise straight tool at a rake angle of -8 degrees and at a cutting rate of 50 m/min, a cutting depth of 1.5 mm and a feed of .11 mm/rev.

It would have been obvious to one of ordinary skill in the art at the time of the invention have been obvious to one of ordinary skill in the art at the time of the invention to use a lathe taught by Oishi to cut the Parikh alloy because this is one specific conventional and efficient method to cut an alloy.

It would have been obvious to one of ordinary skill in the art at the time of the invention to optimize the properties of the lathe taught by Parikh to obtain a necessary alloy shape.

Although the Oishi prior art and the instant invention each aim to improve different characteristics of a copper alloy, it would have been obvious to one of ordinary skill in the art at the time of the invention the method as taught by Oishi can still be used to obtain cut chips of the Parikh copper alloy.

Claim 64 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) in view of Yamazaki et al (4710349) as applied to claim 49 and further in view of Ohno (4515204).

Although Parikh and Yamazaki teach a copper alloy composition, neither teaches a continuous metal composition. Ohno teaches a continuous metal casting process. Ohno, col. 2 lines 10-13, teaches continuous casting, in an upward or horizontal direction of an alloy having a cross sectional shape in the form of a plate, bar or tube.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the Ohno casting method to form the Parikh in view of Yamazaki alloy because Parikh, col. 1 lines 59-62, teaches the continuous casting of a metal ingot results in a smooth and beautiful surface with a high degree of stability. It would have been obvious to one of ordinary skill in the art at the time of the invention that the alloy would be stretched as it is pull in the upward or horizontal direction.

Although Ohno relates to a Cu-Si-Zn alloy, it would have been obvious to one of ordinary skill in the art at the time of the invention that the Ohno method could be applied to the Parikh in view of Yamamzaki alloy because both are considered copper alloy and therefore the method would be useful to achieve a smooth and beautiful surface with a high degree of stability in both alloys.

Claim 65 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) as applied to claim 51 and further in view of Ohno (4515204).

Although Parikh teach a copper alloy composition, neither teaches a continuous metal composition. Ohno teaches a continuous metal casting process. Ohno, col. 2 lines 10-13, teaches continuous casting, in an upward or horizontal direction of an alloy having a cross sectional shape in the form of a plate, bar or tube.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the Ohno casting method to form the Parikh alloy because Parikh, col. 1 lines 59-62, teaches the continuous casting of a metal ingot results in a smooth and beautiful surface with a high degree of stability. It would have been obvious to one of

ordinary skill in the art at the time of the invention that the alloy would be stretched as it is pull in the upward or horizontal direction.

Although Ohno relates to a Cu-Si-Zn alloy, it would have been obvious to one of ordinary skill in the art at the time of the invention that the Ohno method could be applied to the Parikh alloy because both are considered copper alloy and therefore the method would be useful to achieve a smooth and beautiful surface with a high degree of stability in both alloys.

Claim 66 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) in view of Yamazaki et al (4710349) as applied to claim 53 and further in view of Ohno (4515204).

Although Parikh and Yamazaki teach a copper alloy composition, neither teaches a continuous metal composition. Ohno teaches a continuous metal casting process. Ohno, col. 2 lines 10-13, teaches continuous casting, in an upward or horizontal direction of an alloy having a cross sectional shape in the form of a plate, bar or tube.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the Ohno casting method to form the Parikh in view of Yamazaki alloy because Parikh, col. 1 lines 59-62, teaches the continuous casting of a metal ingot results in a smooth and beautiful surface with a high degree of stability. It would have been obvious to one of ordinary skill in the art at the time of the invention that the alloy would be stretched as it is pull in the upward or horizontal direction.

Although Ohno relates to a Cu-Si-Zn alloy, it would have been obvious to one of ordinary skill in the art at the time of the invention that the Ohno method could be applied to the Parikh in view of Yamamzaki alloy because both are considered copper alloy and therefore the method would be useful to achieve a smooth and beautiful surface with a high degree of stability in both alloys.

Claim 67 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) as applied to claim 54 and further in view of Ohno (4515204).

Although Parikh teach a copper alloy composition, neither teaches a continuous metal composition. Ohno teaches a continuous metal casting process. Ohno, col. 2 lines 10-13, teaches continuous casting, in an upward or horizontal direction of an alloy having a cross sectional shape in the form of a plate, bar or tube.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the Ohno casting method to form the Parikh alloy because Parikh, col. 1 lines 59-62, teaches the continuous casting of a metal ingot results in a smooth and beautiful surface with a high degree of stability. It would have been obvious to one of ordinary skill in the art at the time of the invention that the alloy would be stretched as it is pull in the upward or horizontal direction.

Although Ohno relates to a Cu-Si-Zn alloy, it would have been obvious to one of ordinary skill in the art at the time of the invention that the Ohno method could be applied to the Parikh alloy because both are considered copper alloy and therefore the method would be useful to achieve a smooth and beautiful surface with a high degree of

stability in both alloys.

Claim 68 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) in view of Yamazaki et al (4710349) as applied to claim 58 and further in view of Ohno (4515204).

Although Parikh and Yamazaki teach a copper alloy composition, neither teaches a continuous metal composition. Ohno teaches a continuous metal casting process. Ohno, col. 2 lines 10-13, teaches continuous casting, in an upward or horizontal direction of an alloy having a cross sectional shape in the form of a plate, bar or tube.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the Ohno casting method to form the Parikh in view of Yamazaki alloy because Parikh, col. 1 lines 59-62, teaches the continuous casting of a metal ingot results in a smooth and beautiful surface with a high degree of stability. It would have been obvious to one of ordinary skill in the art at the time of the invention that the alloy would be stretched as it is pull in the upward or horizontal direction.

Although Ohno relates to a Cu-Si-Zn alloy, it would have been obvious to one of ordinary skill in the art at the time of the invention that the Ohno method could be applied to the Parikh in view of Yamamzaki alloy because both are considered copper alloy and therefore the method would be useful to achieve a smooth and beautiful surface with a high degree of stability in both alloys.

Claim 72 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) as applied to claim 51 and further in view of Ohno (4515204).
Although Parikh teach a copper alloy composition, neither teaches a continuous metal composition. Ohno teaches a continuous metal casting process. Ohno, col. 2 lines 10-13, teaches continuous casting, in an upward or horizontal direction of an alloy having a cross sectional shape in the form of a plate, bar or tube.
It would have been obvious to one of ordinary skill in the art at the time of the invention to use as taught by Oishi the copper alloy as taught by Parikh in view of Yamazaki because these are conventional usages of a copper alloy.

Claims 88-89 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) in view of Yamazaki et al (4710349) as applied to claim 64 and further in view of Oishi (20020159912).

Although Parikh and Yamazaki teach a copper alloy composition, neither teaches a continuous metal composition, neither teaches the copper alloy being a water fitting used in contact with water.

Oishi, paragraph 10 of the PGPUB, teaches copper alloys are suitable for use in city water faucets, water/supply/drainage metal fittings and hot water supply pipe fittings.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use as taught by Oishi the copper alloy as taught by Parikh in view of

Yamazaki because these are conventional usages of a copper alloy.

Claims 90-91 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) in view of Ohno (4515204) as applied to claim 65 and further in view of Oishi (20020159912).

Although Parikh teach a copper alloy composition, neither teaches a continuous metal composition, neither teaches the copper alloy being a water fitting used in contact with water.

Oishi, paragraph 10 of the PGPUB, teaches copper alloys are suitable for use in city water faucets, water/supply/drainage metal fittings and hot water supply pipe fittings.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use as taught by Oishi the copper alloy as taught by Parikh in view of Yamazaki because these are conventional usages of a copper alloy.

Claims 92-93 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) as applied to claim 18 and further in view of Oishi (20020159912).

Although Parikh teach a copper alloy composition, neither teaches a continuous metal composition, neither teaches the copper alloy being a water fitting used in contact with water.

Oishi, paragraph 10 of the PGPUB, teaches copper alloys are suitable for use in city water faucets, water/supply/drainage metal fittings and hot water supply pipe fittings.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use as taught by Oishi the copper alloy as taught by Parikh in view of Yamazaki because these are conventional usages of a copper alloy.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use as taught by Oishi the copper alloy as taught by Parikh in view of Yamazaki because these are conventional usages of a copper alloy.

Claims 94-95 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) in view of Yamazaki et al (4710349) as applied to claim 64 and further in view of Oishi (20020159912).

Although Parikh and Yamazaki teach a copper alloy composition, neither teaches a continuous metal composition, neither teaches the copper alloy being a water fitting used in contact with water.

Oishi, paragraph 10 of the PGPUB, teaches copper alloys are suitable for use in city water faucets, water/supply/drainage metal fittings and hot water supply pipe fittings.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use as taught by Oishi the copper alloy as taught by Parikh in view of

Yamazaki because these are conventional usages of a copper alloy.

Claims 96-97 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) as applied to claim 76 and further in view of Oishi (20020159912).

Although Parikh teach a copper alloy composition, neither teaches a continuous metal composition, neither teaches the copper alloy being a water fitting used in contact with water.

Oishi, paragraph 10 of the PGPUB, teaches copper alloys are suitable for use in city water faucets, water/supply/drainage metal fittings and hot water supply pipe fittings.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use as taught by Oishi the copper alloy as taught by Parikh in view of Yamazaki because these are conventional usages of a copper alloy.

Claims 98-99 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) as applied to claim 20 and further in view of Oishi (20020159912).

Although Parikh teach a copper alloy composition, neither teaches a continuous metal composition, Parikh does not teach the copper alloy being a water fitting used in contact with water.

Oishi, paragraph 10 of the PGPUB, teaches copper alloys are suitable for use in city water faucets, water/supply/drainage metal fittings and hot water supply pipe fittings.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use as taught by Oishi the copper alloy as taught by Parikh in view of Yamazaki because these are conventional usages of a copper alloy.

Claims 100-101 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) in view of Yamazaki et al (4710349) as applied to claim 75 and further in view of Oishi (20020159912).

Although Parikh and Yamazaki teach a copper alloy composition, neither teaches a continuous metal composition, neither teaches the copper alloy being a water fitting used in contact with water.

Oishi, paragraph 10 of the PGPUB, teaches copper alloys are suitable for use in city water faucets, water/supply/drainage metal fittings and hot water supply pipe fittings.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use as taught by Oishi the copper alloy as taught by Parikh in view of Yamazaki because these are conventional usages of a copper alloy.

Claims 102-103 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) as applied to claim 78 and further in view of Oishi (20020159912).

Although Parikh teach a copper alloy composition, neither teaches a continuous metal composition, neither teaches the copper alloy being a water fitting used in contact with water.

Oishi, paragraph 10 of the PGPUB, teaches copper alloys are suitable for use in city water faucets, water/supply/drainage metal fittings and hot water supply pipe fittings.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use as taught by Oishi the copper alloy as taught by Parikh in view of Yamazaki because these are conventional usages of a copper alloy.

Claim 104 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parikh et al (4047978)in view of Yamazaki et al (4710349) as applied to claim 49 and further in view of Oishi (20020159912).

Although Parikh and Yamazaki teach a copper alloy, neither teaches the uses for the alloy.

Oishi, paragraph 11 of the PGPUB, teaches copper alloys are suitable for hydraulic parts, bearings and gears.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use as taught by Oishi the copper alloy as taught by Parikh and Yamazaki

because these are conventional uses of copper alloys wherein the alloy forms a frictional engagement member performing relative movement in contact with water at all times or temporarily.

Claim 105 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) as applied to claim 51 and further in view of Oishi (20020159912). Although Parikh teaches a copper alloy, neither teaches the uses for the alloy. Oishi, paragraph 11 of the PGPUB, teaches copper alloys are suitable for hydraulic parts, bearings and gears.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use as taught by Oishi the copper alloy as taught by Parikh because these are conventional uses of copper alloys wherein the alloy forms a frictional engagement member performing relative movement in contact with water at all times or temporarily.

Claim 106 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parikh et al (4047978)in view of Yamazaki et al (4710349) as applied to claim 53 and further in view of Oishi (20020159912).

Although Parikh and Yamazaki teach a copper alloy, neither teaches the uses for the alloy.

Oishi, paragraph 11 of the PGPUB, teaches copper alloys are suitable for hydraulic parts, bearings and gears.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use as taught by Oishi the copper alloy as taught by Parikh and Yamazaki because these are conventional uses of copper alloys wherein the alloy forms a frictional engagement member performing relative movement in contact with water at all times or temporarily.

Claim 107 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) as applied to claim 54 and further in view of Oishi (20020159912). Although Parikh teaches a copper alloy, neither teaches the uses for the alloy. Oishi, paragraph 11 of the PGPUB, teaches copper alloys are suitable for hydraulic parts, bearings and gears.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use as taught by Oishi the copper alloy as taught by Parikh because these are conventional uses of copper alloys wherein the alloy forms a frictional engagement member performing relative movement in contact with water at all times or temporarily.

Claim 108 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parikh et al (4047978)in view of Yamazaki et al (4710349) as applied to claim 58 and further in view of Oishi (20020159912).

Although Parikh and Yamazaki teach a copper alloy, neither teaches the uses for the alloy.

Oishi, paragraph 11 of the PGPUB, teaches copper alloys are suitable for hydraulic parts, bearings and gears.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use as taught by Oishi the copper alloy as taught by Parikh and Yamazaki because these are conventional uses of copper alloys wherein the alloy forms a frictional engagement member performing relative movement in contact with water at all times or temporarily.

Claim 109 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) as applied to claim 15 and further in view of Oishi (20020159912). Although Parikh teaches a copper alloy, neither teaches the uses for the alloy. Oishi, paragraph 11 of the PGPUB, teaches copper alloys are suitable for hydraulic parts, bearings and gears.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use as taught by Oishi the copper alloy as taught by Parikh because these are conventional uses of copper alloys wherein the alloy forms a frictional engagement member performing relative movement in contact with water at all times or temporarily.

Claim 110 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parikh et al (4047978)in view of Yamazaki et al (4710349) as applied to claim 64 and further in view of Oishi (20020159912).

Although Parikh and Yamazaki teach a copper alloy, neither teaches the uses for the alloy.

Oishi, paragraph 11 of the PGPUB, teaches copper alloys are suitable for hydraulic parts, bearings and gears.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use as taught by Oishi the copper alloy as taught by Parikh and Yamazaki because these are conventional uses of copper alloys wherein the alloy forms a frictional engagement member performing relative movement in contact with water at all times or temporarily.

Claim 111 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) in view of Ohno (45152040) as applied to claim 65 and further in view of Oishi (20020159912).

Although Parikh and Ohno teach a copper alloy, neither teaches the uses for the alloy.

Oishi, paragraph 11 of the PGPUB, teaches copper alloys are suitable for hydraulic parts, bearings and gears.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use as taught by Oishi the copper alloy as taught by Parikh because these are conventional uses of copper alloys wherein the alloy forms a frictional engagement member performing relative movement in contact with water at all times or temporarily.

Claim 112 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) as applied to claim 18 and further in view of Oishi (20020159912). Although Parikh teaches a copper alloy, neither teaches the uses for the alloy.

Oishi, paragraph 11 of the PGPUB, teaches copper alloys are suitable for hydraulic parts, bearings and gears.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use as taught by Oishi the copper alloy as taught by Parikh because these are conventional uses of copper alloys wherein the alloy forms a frictional engagement member performing relative movement in contact with water at all times or temporarily.

Claim 113 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parikh et al (4047978)in view of Yamazaki et al (4710349) as applied to claim 73 and further in view of Oishi (20020159912).

Although Parikh and Yamazaki teach a copper alloy, neither teaches the uses for the alloy.

Oishi, paragraph 11 of the PGPUB, teaches copper alloys are suitable for hydraulic parts, bearings and gears.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use as taught by Oishi the copper alloy as taught by Parikh and Yamazaki because these are conventional uses of copper alloys wherein the alloy forms a frictional engagement member performing relative movement in contact with water at all

times or temporarily.

Claim 114 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) as applied to claim 76 and further in view of Oishi (20020159912). Although Parikh teaches a copper alloy, neither teaches the uses for the alloy. Oishi, paragraph 11 of the PGPUB, teaches copper alloys are suitable for hydraulic parts, bearings and gears.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use as taught by Oishi the copper alloy as taught by Parikh because these are conventional uses of copper alloys wherein the alloy forms a frictional engagement member performing relative movement in contact with water at all times or temporarily.

Claim 115 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) as applied to claim 20 and further in view of Oishi (20020159912).

Although Parikh teaches a copper alloy, neither teaches the uses for the alloy. Oishi, paragraph 11 of the PGPUB, teaches copper alloys are suitable for hydraulic parts, bearings and gears.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use as taught by Oishi the copper alloy as taught by Parikh because these are conventional uses of copper alloys wherein the alloy forms a frictional engagement member performing relative movement in contact with water at all times or temporarily.

Claim 116 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parikh et al (4047978)in view of Yamazaki et al (4710349) as applied to claim 75 and further in view of Oishi (20020159912).

Although Parikh and Yamazaki teach a copper alloy, neither teaches the uses for the alloy.

Oishi, paragraph 11 of the PGPUB, teaches copper alloys are suitable for hydraulic parts, bearings and gears.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use as taught by Oishi the copper alloy as taught by Parikh and Yamazaki because these are conventional uses of copper alloys wherein the alloy forms a frictional engagement member performing relative movement in contact with water at all times or temporarily.

Claim 117 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) as applied to claim 78 and further in view of Oishi (20020159912).

Although Parikh teaches a copper alloy, neither teaches the uses for the alloy. Oishi, paragraph 11 of the PGPUB, teaches copper alloys are suitable for hydraulic parts, bearings and gears.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use as taught by Oishi the copper alloy as taught by Parikh because these are conventional uses of copper alloys wherein the alloy forms a frictional engagement

member performing relative movement in contact with water at all times or temporarily.

Claim 118 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) in view of Yamazaki et al (4710349) as applied to claim 104 and further in view of Oishi (20020159912).

Although Parikh and Yamazaki teach a copper alloy, neither teaches the uses for the alloy.

Oishi, paragraph 11 of the PGPUB, teaches copper alloys are suitable for hydraulic parts, bearings and gears.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use as taught by Oishi the copper alloy as taught by Parikh and Yamazaki because these are conventional uses of copper alloys.

Claim 119 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) as applied to claim 105 and further in view of Oishi (20020159912).

Although Parikh teaches a copper alloy, neither teaches the uses for the alloy. Oishi, paragraph 11 of the PGPUB, teaches copper alloys are suitable for hydraulic parts, bearings and gears

It would have been obvious to one of ordinary skill in the art at the time of the invention to use as taught by Oishi the copper alloy as taught by Parikh because these are conventional uses of copper alloys.

Claim 120 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parikh et al (4047978)in view of Yamazaki et al (4710349) as applied to claim 106 and further in view of Oishi (20020159912).

Although Parikh and Yamazaki teach a copper alloy, neither teaches the uses for the alloy.

Oishi, paragraph 11 of the PGPUB, teaches copper alloys are suitable for hydraulic parts, bearings and gears.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use as taught by Oishi the copper alloy as taught by Parikh and Yamazaki because these are conventional uses of copper alloys.

Claim 121 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) as applied to claim 107 and further in view of Oishi (20020159912).

Although Parikh teaches a copper alloy, neither teaches the uses for the alloy. Oishi, paragraph 11 of the PGPUB, teaches copper alloys are suitable for hydraulic parts, bearings and gears.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use as taught by Oishi the copper alloy as taught by Parikh because these are conventional uses of copper alloys.

Claim 122 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parikh et al (4047978)in view of Yamazaki et al (4710349) as applied to claim 108 and further in view of Oishi (20020159912).

Although Parikh and Yamazaki teach a copper alloy, neither teaches the uses for the alloy.

Oishi, paragraph 11 of the PGPUB, teaches copper alloys are suitable for hydraulic parts, bearings and gears.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use as taught by Oishi the copper alloy as taught by Parikh and Yamazaki because these are conventional uses of copper alloys.

Claims 15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parikh et al (4110132) in view of Oishi (20020159912) as discussed in claim 13 and further in view of Ohno (4515204).

Although Parikh and Oishi teach a copper alloy composition, neither teaches a continuous metal composition. Ohno teaches a continuous metal casting process.

Ohno, col. 2 lines 10-13, teaches continuous casting, in an upward or horizontal direction of an alloy having a cross sectional shape in the form of a plate, bar or tube.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the Ohno casting method to form the Parikh alloy because Parikh, col. 1 lines 59-62, teaches the continuous casting of a metal ingot results in a smooth and beautiful surface with a high degree of stability.

It would have been obvious to one of ordinary skill in the art at the time of the invention that the alloy would be stretched as it is pull in the upward or horizontal direction.

Although Ohno relates to a Cu-Si-Zn alloy, it would have been obvious to one of ordinary skill in the art at the time of the invention that the Ohno method could be applied to the Parikh alloy because both are considered copper alloy and therefore the method would be useful to achieve a smooth and beautiful surface with a high degree of stability in both alloys.

Claims 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parikh et al (4110132) as applied to claim 13.

It would have been obvious to one of ordinary skill in the art at the time of the invention optimize the temperature of the casting process to obtain a specific solid phase fraction.

Regarding claim 19, the copper alloy as taught by Parikh is made by the same method as taught in the instant specification and therefore it would be expected that Parikh and the instant claims would result in the same properties and the same phases.

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parikh et al (4110132) as applied to claim 18.

It would have been obvious to one of ordinary skill in the art at the time of the invention to optimize the casting process to obtain a specific shape.

Claim 123 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parikh et al (4047978)in view of Yamazaki et al (4710349) as applied to claim 49 and further in view of Oishi (20020159912).

Although Parikh and Yamazaki teach a copper alloy, neither teaches an end use for the alloy

Oishi, paragraph 13 of the PGPUB, teaches copper alloys can be formed into tube connectors called "nipples".

It would have been obvious to one of ordinary skill in the art at the time of the invention to make tube connectors as taught by Oishi with the copper alloy as taught by Parikh and Yamazaki because tube connectors are one conventional use for copper alloys.

Claim 124 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) as applied to claim 51 and further in view of Oishi (20020159912).

Although Parikh teaches a copper alloy, neither teaches an end use for the alloy Oishi, paragraph 13 of the PGPUB, teaches copper alloys can be formed into tube connectors called "nipples".

It would have been obvious to one of ordinary skill in the art at the time of the invention to make tube connectors as taught by Oishi with the copper alloy as taught by Parikh and Yamazaki because tube connectors are one conventional use for copper alloys.

Claim 125 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) in view of Yamazaki et al (4710349) as applied to claim 53 and further in view of Oishi (20020159912).

Although Parikh and Yamazaki teach a copper alloy, neither teaches an end use for the alloy.

Oishi, paragraph 13 of the PGPUB, teaches copper alloys can be formed into tube connectors called "nipples".

It would have been obvious to one of ordinary skill in the art at the time of the invention to make tube connectors as taught by Oishi with the copper alloy as taught by Parikh and Yamazaki because tube connectors are one conventional use for copper alloys.

Claim 126 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) as applied to claim 54 and further in view of Oishi (20020159912).

Although Parikh teaches a copper alloy, neither teaches an end use for the alloy Oishi, paragraph 13 of the PGPUB, teaches copper alloys can be formed into tube connectors called "nipples".

It would have been obvious to one of ordinary skill in the art at the time of the invention to make tube connectors as taught by Oishi with the copper alloy as taught by Parikh and Yamazaki because tube connectors are one conventional use for copper alloys.

Claim 127 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parikh et al (4047978)in view of Yamazaki et al (4710349) as applied to claim 58 and further in view of Oishi (20020159912).

Although Parikh and Yamazaki teach a copper alloy, neither teaches an end use for the alloy.

Oishi, paragraph 13 of the PGPUB, teaches copper alloys can be formed into tube connectors called "nipples".

It would have been obvious to one of ordinary skill in the art at the time of the invention to make tube connectors as taught by Oishi with the copper alloy as taught by Parikh and Yamazaki because tube connectors are one conventional use for copper alloys.

Claim 128 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) as applied to claim 18 and further in view of Oishi (20020159912). Although Parikh teaches a copper alloy, neither teaches an end use for the alloy Oishi, paragraph 13 of the PGPUB, teaches copper alloys can be formed into tube connectors called "nipples".

It would have been obvious to one of ordinary skill in the art at the time of the invention to make tube connectors as taught by Oishi with the copper alloy as taught by Parikh and Yamazaki because tube connectors are one conventional use for copper alloys.

Claim 129 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parikh et al (4047978)in view of Yamazaki et al (4710349) as applied to claim 73 and further in view of Oishi (20020159912).

Although Parikh and Yamazaki teach a copper alloy, neither teaches an end use for the alloy.

Oishi, paragraph 13 of the PGPUB, teaches copper alloys can be formed into tube connectors called "nipples".

It would have been obvious to one of ordinary skill in the art at the time of the invention to make tube connectors as taught by Oishi with the copper alloy as taught by Parikh and Yamazaki because tube connectors are one conventional use for copper alloys.

Claim 130 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) as applied to claim 76 and further in view of Oishi (20020159912). Although Parikh teaches a copper alloy, neither teaches an end use for the alloy Oishi, paragraph 13 of the PGPUB, teaches copper alloys can be formed into tube connectors called "nipples".

It would have been obvious to one of ordinary skill in the art at the time of the invention to make tube connectors as taught by Oishi with the copper alloy as taught by Parikh and Yamazaki because tube connectors are one conventional use for copper alloys.

Claim 131 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) as applied to claim 79 and further in view of Oishi (20020159912).

Although Parikh teaches a copper alloy, neither teaches an end use for the alloy.

Oishi, paragraph 13 of the PGPUB, teaches copper alloys can be formed into tube connectors called "nipples".

It would have been obvious to one of ordinary skill in the art at the time of the invention to make tube connectors as taught by Oishi with the copper alloy as taught by Parikh and Yamazaki because tube connectors are one conventional use for copper alloys.

Claim 132 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parikh et al (4047978)in view of Yamazaki et al (4710349) as applied to claim 80 and further in view of Oishi (20020159912).

Although Parikh and Yamazaki teach a copper alloy, neither teaches an end use for the alloy.

Oishi, paragraph 13 of the PGPUB, teaches copper alloys can be formed into tube connectors called "nipples".

It would have been obvious to one of ordinary skill in the art at the time of the invention to make tube connectors as taught by Oishi with the copper alloy as taught by Parikh and Yamazaki because tube connectors are one conventional use for copper alloys.

Claim 133 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parikh et al (4047978) as applied to claim 81 and further in view of Oishi (20020159912).

Although Parikh teaches a copper alloy, neither teaches an end use for the alloy Oishi, paragraph 13 of the PGPUB, teaches copper alloys can be formed into tube connectors called "nipples".

It would have been obvious to one of ordinary skill in the art at the time of the invention to make tube connectors as taught by Oishi with the copper alloy as taught by Parikh and Yamazaki because tube connectors are one conventional use for copper alloys.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to STEFANIE COHEN whose telephone number is (571)270-5836. The examiner can normally be reached on Monday through Thursday 9:3am-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Melvin Curtis Mayes can be reached on 5712721234. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Stefanie Cohen 2/17/2010

SC

February 25, 2010

/Melvin Curtis Mayes/
Supervisory Patent Examiner, Art Unit 1793